Duplicate.

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

DISTRICT 7

ACCIDENT INVESTIGATION REPORT
(UNDERGROUND COAL MINE)
NON-INJURY COAL OUTBURST
C-2, (I.D. NO. 15-07201)
HARLAN CUMBERLAND COAL COMPANY
DIONE, HARLAN COUNTY, KENTUCKY

JANUARY 11, 1990

BY

JAMES W. POYNTER
COAL MINE SAFETY AND HEALTH INSPECTOR

AND

ROBERT W. RHEA
COAL MINE SAFETY AND HEALTH INSPECTOR

ORIGINATING OFFICE - MINE SAFETY AND HEALTH ADMINISTRATION
HC66, BOX 1762, BARBOURVILLE, KENTUCKY 40906
JOSEPH J. GARCIA, DISTRICT MANAGER

Al, thought you might want a copy . . .
if you don't already have one.

Terry Hock

PS

Abstract of Investigation

U.S. Department of Labor
Mine Safety and Health Administration

AUTHORITY - This report is based on an investigation made pursuant to the Federal Mine Safety and Health Act of 1977, Public Law 91-173, as amended by Public Law 95-164.

Section A - Identification Data

1. Title of investigation:
Non-injury Coal Outburst Accident

2. Date MSHA investigation started:
1/16/90

3. Report release date:
1/25/90

4. Mine:
C-2

5. Mine ID number:
15-07201

6. Company:
Harlan Cumberland Coal Company

7. Town, County, State:
Dione, Harlan County, Kentucky

8. Author(s):
James W. Poynter / Robert W. Rhea

Section B - Mine Information

9. Daily production:
500 tons

10. Surface employment:
0

11. Underground employment:
22

12. Name of coalbed:
Creech

13. Thickness of coalbed:
80 inches

Section C - Last Quarter Injury Frequency Rate (HSAC) for:

14. Industry:

15. This operation:
9.47

16. Training program approved:
9/2/68

17. Mine Profile Rating:
N/A

Section D - Originating Office

18. Mine Safety and Health Administration
Coal Mine Health and Safety District No. : 7

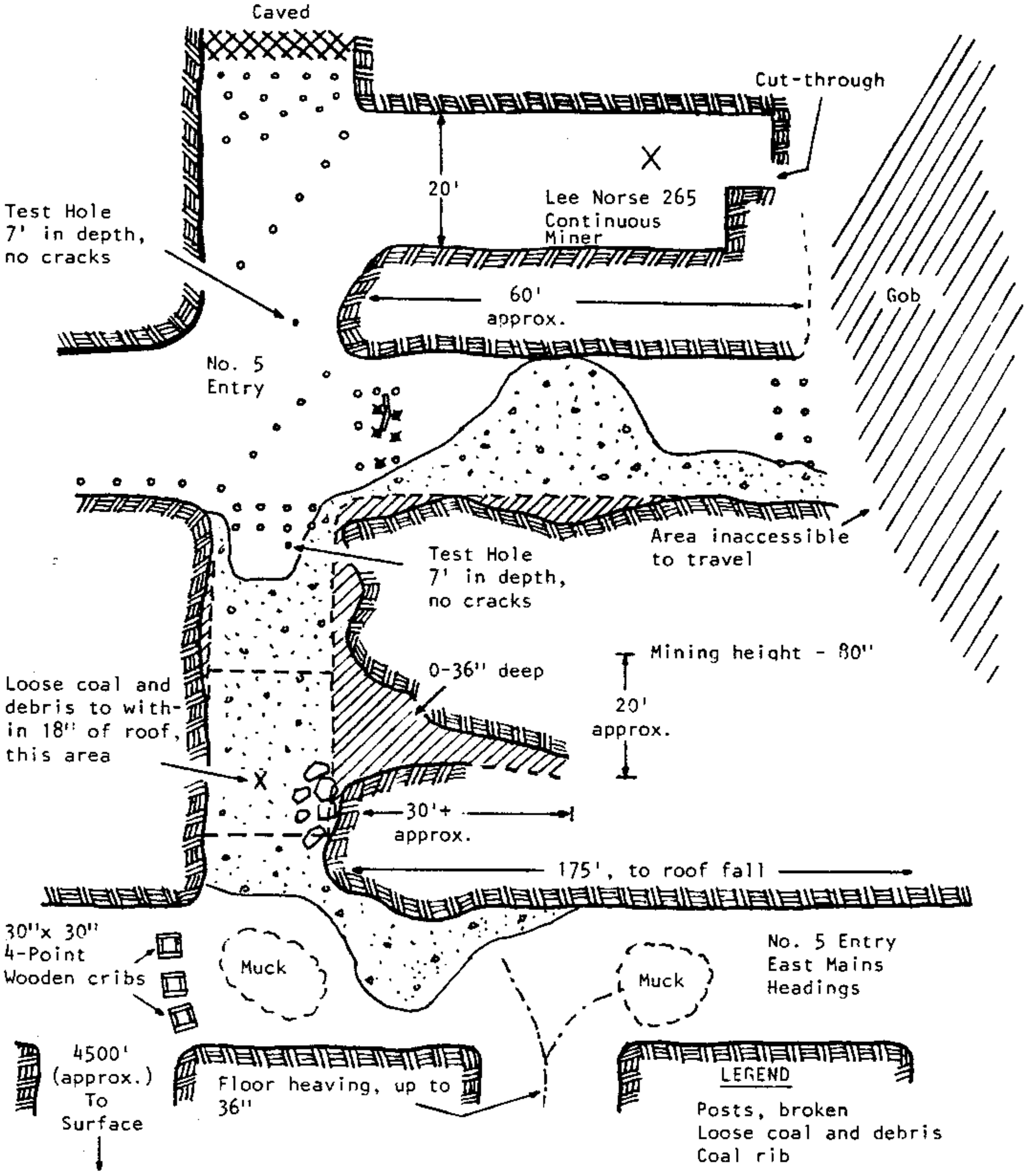
Address:
HC 66, Box 1762, Barbourville, Kentucky 40906

Section E - Abstract

A coal outburst accident occurred between 3:30 - 4:00 p.m., Thursday, January 11, 1990, on the 2nd Right off No. 2 East Mains (002-0) section, during pillar recovery operations. The outburst did not result in personal injury or damage to equipment. The outburst caused extensive damage to the pillar developed between the No. 5 face entry and the old workings of the East Main headings and moderate damage to the adjacent pillar to the left. Mining operations ceased at this time and the face equipment was moved to a point approximately three-hundred (300) feet outby the affected area.

Section F - Mine Organization

Company officials:	Name	Address
19. President:	Joe Bennett	General Delivery, Grays Knob, KY 40826
20. Superintendent:	Robert Burgan	General Delivery, Grays Knob, KY 40826
21. Safety Director:	Eddie Sargent	General Delivery, Grays Knob, KY 40826
22. Principle officer - H&S:	Robert Burgan	General Delivery, Grays Knob, KY 40826
23. Labor Organization:	None	
24. Chairman - H&S Committee:	None	



NON-INJURY COAL OUTBURST ACCIDENT
C-2 MINE (I.D. NO. 15-07201)
HARLAN CUMBERLAND COAL COMPANY
DIONE, HARLAN COUNTY, KENTUCKY
JANUARY 11, 1990

Not to Scale

GENERAL INFORMATION

The C-2 Mine of Harlan Cumberland Coal Company is located three-fourths of one mile south of US 119 at Dione, Harlan County, Kentucky. The mine began operation on or about October 1, 1980. The mine produces coal one shift per day, five days per week, with twenty-two underground employees. Surface communication is maintained to the centrally located shop.

The mine is a two-unit mine with one advancing and one retreating unit. The advancing unit utilizes a three to five entry system. The retreating unit develops panels to the left and right of the main entries and first recovers the pillars in the panels. Pillaring is completed by closing out entries. The equipment used on the two sections is Lee Norse 265 continuous miners, Joy 21SC shuttle cars and one FMC 3510 twin-head bolting machines with ATRS. Two FMC 300 single head bolting machines, one S&S 482 battery-powered scoop and one Eimco 935 diesel-powered scoop are used for clean-up and supply haulage. Both units utilize belt conveyors for mantrips and coal haulage. The mine has a daily production of five-hundred (500) tons.

The Roof Control Plan, approved September 26, 1988, provides for full overhead support in all advancing roof spans. Roof support on the retreating section is maintained with full overhead support in the first two cuts of the pillar splits and posts in the remaining split and lift cuts.

The maximum entry width is twenty feet, developed with a minimum distance of sixty (60) feet between the centers of entries and crosscuts and fifty (50) feet between the centers of rooms and crosscuts.

Rods, fully grouted with polyester resin, are used on the advancing sections. The minimum length of the rods is forty-two (42) inches with installation on forty-eight (48) inch centers. Mechanically anchored, tensioned roof bolts are used on the retreating section. The minimum length of the bolts is thirty (30) inches installed on forty-eight (48) inch centers.

Principal Mine Officials are:

Joe T. Bennett	President
Clyde V. Bennett, III	Vice-President/General Manager
Catherine McCue	Secretary

The last regular safety and health inspection was completed on December 29, 1989.

DESCRIPTION OF ACCIDENT

On Thursday, January 11, 1990, at approximately 5:30 a.m., the 002 Section Crew traveled via belt conveyor mantrip to the section. Production began at approximately 6:00 a.m. and continued without incident, until approximately 3:30 - 4:00 p.m. At this time, the continuous miner had just completed one run of the cut-through into the area of old workings of the East Main headings. The pillar split was in the No. 4 pillar, adjacent to the No. 5 face entry, approximately eighty (80) feet inby the No. 5 entry of the East Main headings. As the continuous miner was being set over to complete the cut-through, an outburst occurred in the pillar immediately outby the one being mined.

The outburst did not result in any personal injury or damage to mining equipment, as the No. 5 face entry was not being utilized as a roadway at this location.

The outburst caused extensive damage to the coal pillar developed between the No. 5 face entry and the old workings of the East Main headings, and moderate damage to the pillar adjacent to the left of the affected pillar. Large amounts of loose coal and debris were expelled from the inby crosscut rib and the No. 5 face entry rib of the affected pillar.

Following the outburst, mining operations were ceased and the face equipment was moved to a location approximately three hundred (300) feet outby the pillar line.

PHYSICAL FACTORS INVOLVED

The investigation revealed the following factors relevant to the occurrence of the accident:

1. The mine is located in the Creech coal seam. The immediate roof, throughout the mine, normally consists of up to ten (10) feet of firm, sandy shale and the main roof consists of ten (10) feet or more firm sandstone.

2. The roof in the affected area was supported by forty-eight inch mechanically anchored tensioned bolts and spot-bolted as needed across the East Main headings with sixty (60) inch mechanically anchored tensioned bolts.

3. The coal seam at this location consists of two layers, approximately thirty (30) to thirty-six (36) inches each in thickness, with a parting of hard shale approximately twelve (12) to eighteen (18) inches in thickness.

4. The mine floor consists of firm shale but has experienced extensive heaving, as much as thirty-six (36) inches in height, at various locations across the section. The greatest amount of the heaving had occurred in the crosscuts and entries of the East Main headings adjacent to the worked out areas.

5. The total amount of overburden over the affected area was approximately one-thousand three-hundred (1300) feet. The area underlies the center geographic ridge of the mountain.

6. Pressure "bulging" and rib sloughage were observed at various locations on the section; however, these conditions were more prevalent on the right side, adjacent to the old East Main headings.

7. Two (2), previously drilled, roof test holes located in the No. 5 face entry were examined, each approximately seventy-two (72) inches in depth, with no cracks detected.

8. Moderate (air-slag) scaling of the mine roof had occurred in the area of the East Main headings. No visible tension or compression cracks were observed in the affected area.

9. Approximately ninety-eight (98) tons of loose coal and deoris were expelled from the affected pillars. The greatest amount of loose coal and debris was deposited between the two affected pillars in the No. 5 face entry. The material had been deposited to within eighteen (18) inches of the mine roof in this area.

10. The dimensions of the affected pillar, developed between the No. 5 face entry of the 002 section, and the old works off the East Main headings were approximately sixty (60) feet by fifty-five (55) feet by one-hundred seventy-five (175) feet. The side of the pillar adjacent to the old workings was inaccessible and its dimension could not be determined.

11. The coal pillars across the section had been developed to dimensions of approximately forty (40) feet by sixty (60) feet.

12. No underground workings, above or below this mine, were located within proximity which could have appreciably contributed to the occurrence of the outburst.

13. The operator's approved mine map does not accurately delineate the projections of the 002-0 section and the extent of old workings in the East Main headings.

14. Gob areas were observed to the left, right and inby the affected areas.

CONCLUSION

The apparently large cross-sectioned area of the affected pillar created an abutment zone of pressures exerted from the adjacent worked-out areas. The pressure induced by the mining of the cut-through in the inby pillar further increased the load on the affected pillar. This loading apparently increased to and beyond the load-bearing strength of the coal pillar, which resulted in its failure.

The damage sustained by the adjacent pillar could be attributed to the result of shock forces transmitted across the No. 5 face entry from the site of the outburst.

VIOLATIONS

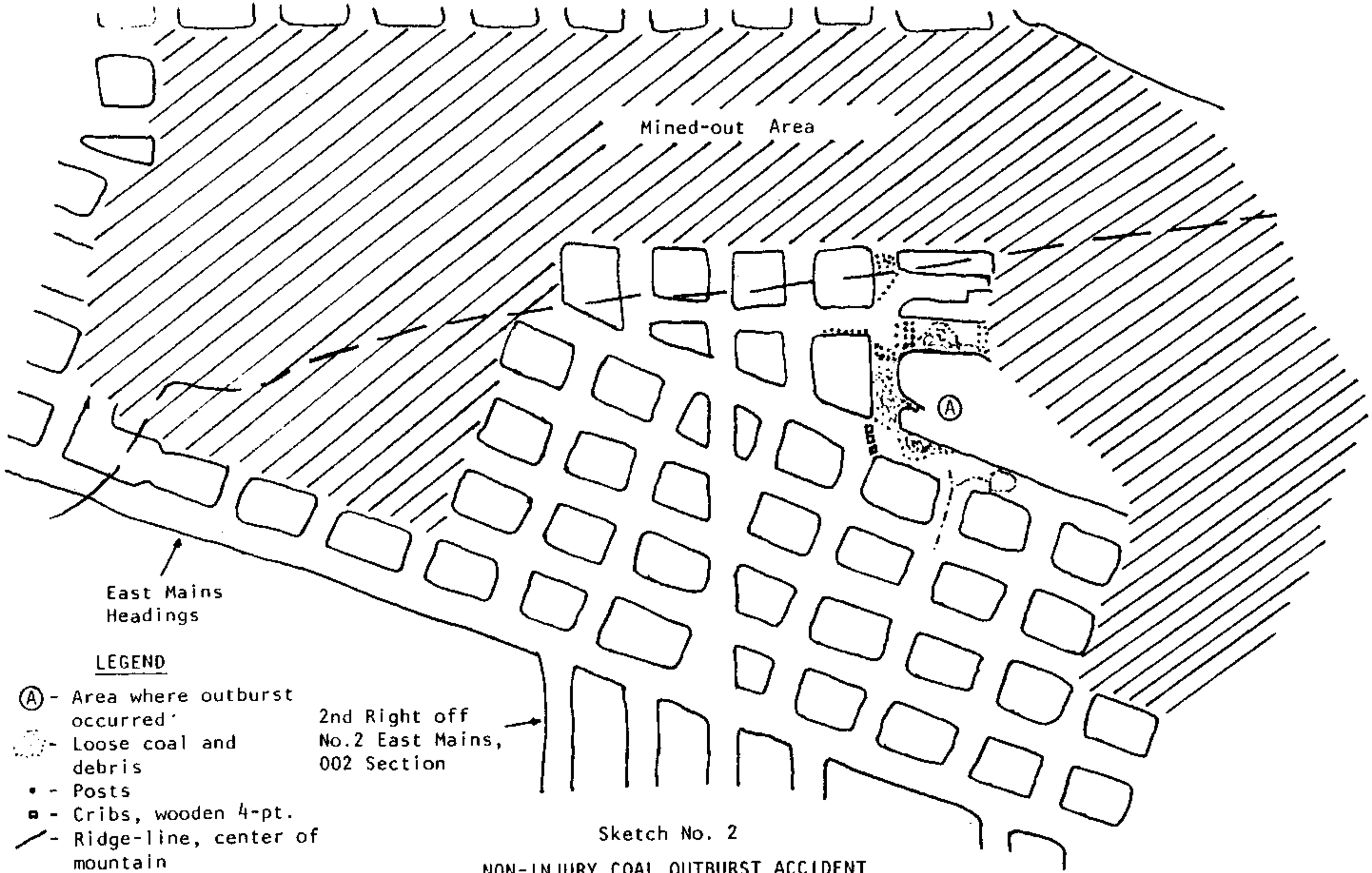
The following conditions and/or practices were observed during the investigation:

1. A 103-K Order was issued on January 12, 1990.

2. A 104-A Citation was issued for the operator's failure to immediately report the accident, a violation of 30CFR 50.10.

3. A 104-A Citation was issued for an inaccurate mine map, a violation of 30 CFR 75.1200.

4. A 104-A Citation was issued for mining methods developing a coal pillar of dimensions not compatible with effective control of coal or rock outbursts, a violation of 30 CFR 75.203(a).



Sketch No. 2

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